

Claims

1. (currently amended) A machine for machining workpieces, the machine comprising:

at least one milling tool with an internal milling cutter having a milling opening surrounding a workpiece for milling an outer surface of a workpiece;

a first guide system;

a second guide system parallel to and spaced from the first guide system;

wherein the first guide system comprises at least one compound slide having a slide part, wherein the at least one compound slide is moveable in a longitudinal direction of the first guide system and wherein the slide part is moveable transversely to the longitudinal direction on linear axis X;

the at least one [[a]] milling tool being secured on the slide part;

wherein the second guide system comprises a chuck for receiving a workpiece, the chuck having an axis of rotation about which a workpiece received in the chuck is rotatable;

wherein machining of a workpiece received in the chuck by the at least one milling tool is carried out by axis interpolation of the linear axis X and the axis of rotation of the chuck.

2. (original) The machine according to claim 1, wherein the first and second guide systems have sliding guides.

3. (original) The machine according to claim 1, wherein the first and second guide systems have roller bearing guides.

4. (original) The machine according to claim 1, wherein the at least one compound slide has a transverse guide system and wherein the slide part is guided on the transverse guide system.

5. (original) The machine according to claim 1, wherein the slide part is a milling unit.

6. (original) The machine part according to claim 1, further comprising at least one head stock supported on the second guide system in an area adjacent to the at least one compound slide.

7. (currently amended) The machine part according to claim 1, further comprising at least one steady rest supported on the second guide system ~~systems~~ in an area adjacent to the at least one compound slide.

8. (original) The machine part according to claim 1, wherein the first and second guide systems each have at least two parallel extending guide rails.

9. (original) The machine according to claim 8, wherein the at least one compound slide has at least two guide shoes engaging the at least two guide rails.

10. (currently amended) The machine according to claim 8, wherein the at least one compound slide has two guide shoes positioned at a spacing to one another, respectively, for engaging each one of the guide rails, ~~wherein the two guide shoes are positioned at a spacing to one another, respectively.~~

11. (currently amended) The machine according to claim 8, further comprising at least one head stock supported on the second guide system in an area adjacent to the at least one compound slide, wherein the at least one head stock has at least one guide shoe engaging the guide rails of the second guide ~~guides~~ system.

12. (currently amended) The machine according to claim 11, wherein the at least one head stock has two of the guide shoes positioned at a spacing to one another on each one of the guide rails of the second guide system, respectively.

13. (currently amended) The machine according to claim 8, further comprising at least one steady rest supported on the second guide system in an area adjacent to the at least one compound slide, wherein the at least one steady rest has at least one guide shoe engaging the guide rails of the second guide system.

14. (original) The machine according to claim 1, wherein the first guide system has two of the at least one compound slide.

15. (original) The machine according to claim 14, wherein the two compound slides are movable independently from one another along the first guide system.

16. (original) The machine according to claim 1, wherein the at least one compound slide has an advancing drive.

17. (original) The machine according to claim 16, wherein the advancing drive is a ball screw or a linear motor.

18. (currently amended) The machine according to claim 1, further comprising at

least one head stock supported on the second guide system in an area adjacent to the at least one compound slide, wherein the at least one headstock has an advancing drive.

19. (original) The machine according to claim 18, wherein the advancing drive of the headstock is a hydraulic drive or a ball screw.

20. (original) The machine according to claim 1, further comprising two head stocks, wherein a first one of the head stocks is fixedly attached to a machine frame of the machine.

21. (original) The machine according to claim 1, further comprising two head stocks supported on the second guide system.

22. (original) The machine according to claim 21, wherein the two head stocks are drivable independently from one another.

23. (original) The machine according to claim 1, further comprising two headstocks fastened on a machine frame of the machine.

24. (original) The machine according to claim 1, further comprising at least one head stock having a chuck.

25. (original) The machine according to claim 24, wherein the chuck is drivable about an axis of rotation.

26. (original) The machine according to claim 1, wherein the first guide system has two of the at least one compound slide, wherein the compound slides each have a transverse guide system for guiding the slide part, respectively.

27. (original) The machine according to claim 26, wherein the transverse guide systems are provided on sides of the compound slides that are facing one another.

28. (original) The machine according to claim 1, wherein the slide part has a projecting end that projects in the transverse direction past the at least one compound slide in a direction of a headstock of the machine.

29. (currently amended) The machine according to claim 28, wherein the projecting end supports the at least one milling tool.

30. (currently amended) The machine according to claim 1, wherein the at least one milling tool has a direct drive.

31. (original) The machine according to claim 1, wherein the first and second guide systems have guide rails that are at least partially positioned underneath a cover.

32. (original) The machine according to claim 31, wherein the cover is a telescoping cover.

33. (original) The machine according to claim 31, further comprising energy conduits arranged underneath the cover.

34. (original) The machine according to claim 33, wherein the energy conduits extend between the guide rails of the first and second guide systems.

35. (currently amended) The machine according to claim 1, comprising a machine frame having an inclined bed configuration having an inclined side inclined relative to a horizontal plane.

36. (original) The machine according to claim 35, wherein the first and second guide systems are arranged on the inclined side of the machine frame.

37. (new) The machine according to claim 1, wherein the first guide system has two parallel guide rails and wherein the first guide system has two of the at least one compound slide, said two of the at least one compound slide each being guided on said two parallel guide rails.

38. (new) The machine according to claim 37, further comprising a steady rest arranged on the second guide system, the steady rest having a drive for moving the steady rest on the second guide system.

39. (new) The machine according to claim 38, further comprising:
telescoping guide path covers for protecting the first and second guide systems; and

energy conduits arranged underneath the telescoping guide path covers.

40. (new) The machine according to claim 1, further comprising a steady rest arranged on the second guide system, the steady rest having a drive for moving the steady rest on the second guide system.

41. (new) The machine according to claim 1, further comprising:
telescoping guide path covers for protecting the first and second guide systems; and

energy conduits arranged underneath the telescoping guide path covers.

42. (new) A machine for machining workpieces, the machine comprising:
at least one milling tool with an internal milling cutter having a milling opening

surrounding a workpiece for milling an outer surface of a workpiece;

a first guide system;

a second guide system parallel to and spaced apart from the first guide system;

wherein the first guide system comprises at least one compound slide having a slide part, wherein the at least one compound slide is moveable in a longitudinal direction of the first guide system and wherein the slide part is moveable transversely to the longitudinal direction;

the at least one milling tool being secured on the slide part;

a steady rest arranged on the second guide system, the steady rest having a drive for moving the steady rest on the second guide system.

43. (new) The machine according to claim 42, further comprising:

telescoping guide path covers for protecting the first and second guide systems; and

energy conduits arranged underneath the telescoping guide path covers.

44. (new) A machine for machining workpieces, the machine comprising:

at least one milling tool with an internal milling cutter having a milling opening surrounding a workpiece for milling an outer surface of a workpiece;

a first guide system;

a second guide system parallel to and spaced apart from the first guide system;

wherein the first guide system comprises at least one compound slide having a slide part, wherein the at least one compound slide is moveable in a longitudinal direction of the first guide system and wherein the slide part is moveable transversely to the longitudinal direction;

the at least one milling tool being secured on the slide part;

telescoping guide path covers for protecting the first and second guide systems;

energy conduits arranged underneath the telescoping guide path covers.

45. (new) The machine according to claim 44, wherein the first guide system has two parallel guide rails and wherein the first guide system has two of the at least one

compound slide, said two of the at least one compound slide each being guided on said two parallel guide rails.